Section 6-2: Slope of a Line

By the end of this lesson, you should be able to answer:

- How do you find the slope of a line?
- How do you identify horizontal and vertical lines?

Where you might see this in the real world:

- Business, science, transportation

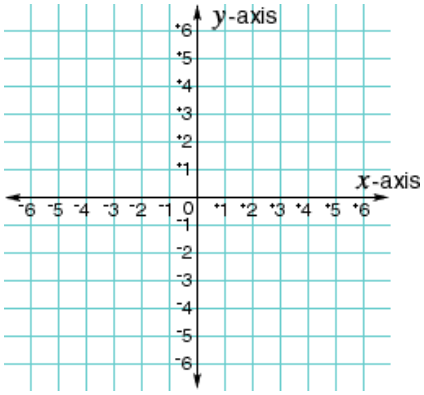
Define the following term:

1. Slope

There are many ways we can work on finding the slope of a line. We could count how much it "rises" and how much it "runs", thus the saying "rise over run" for slope. There is a trick to remembering what "rise" and "run" are as well. Use your hands to represent rise, and see which axis it mirrors. Then run. Which axis could this represent?

The other way is to use two points to find the slope using our slope equation.

Example 1: Graph the line that goes through points $C = (-4, 0)$ and $D = (4, 4)$, then find the slope of the line.



Example 2: Find the slope for the lines containing the following:

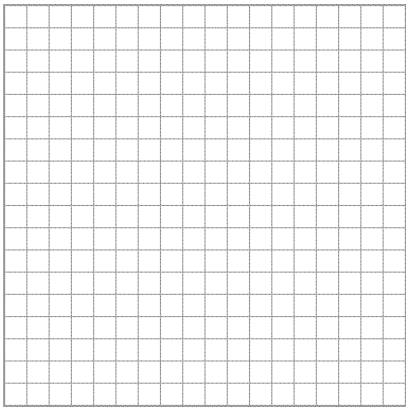
a. (9, -2), (3, -2)

b. (3, 12), (3, -4)

If you were to plot the points from Example 2, you would notice that you would have a horizontal line for part a and a vertical line for part b. For any horizontal line, you will find that the slope will be _____ and for any vertical line, the slope will be _____.

Another use for slope is with graphing lines. If you have a point and a slope, all you have to do first is plot the point you have, then plot the rest of the line by using the slope.

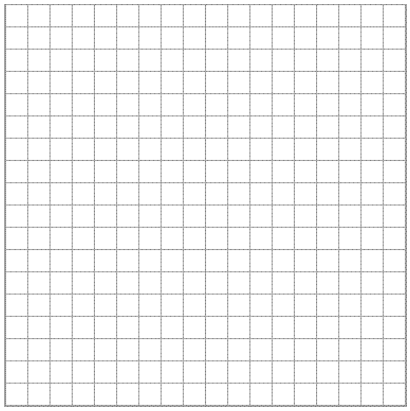
Example 3: Graph the line that passes through $P = (-1, 1)$ with a slope of -2.



Example 4:

a. Find the slope of $\overline{AB}$ and $\overline{CD}$ when $A = (0, -1)$, $B = (2, 2)$, $C = (-3, 1)$, and $D = (-1, 4)$.

b. Graph the two lines. What do you notice?



Problem Set:

"The power of imagination makes us infinite." - John Muir